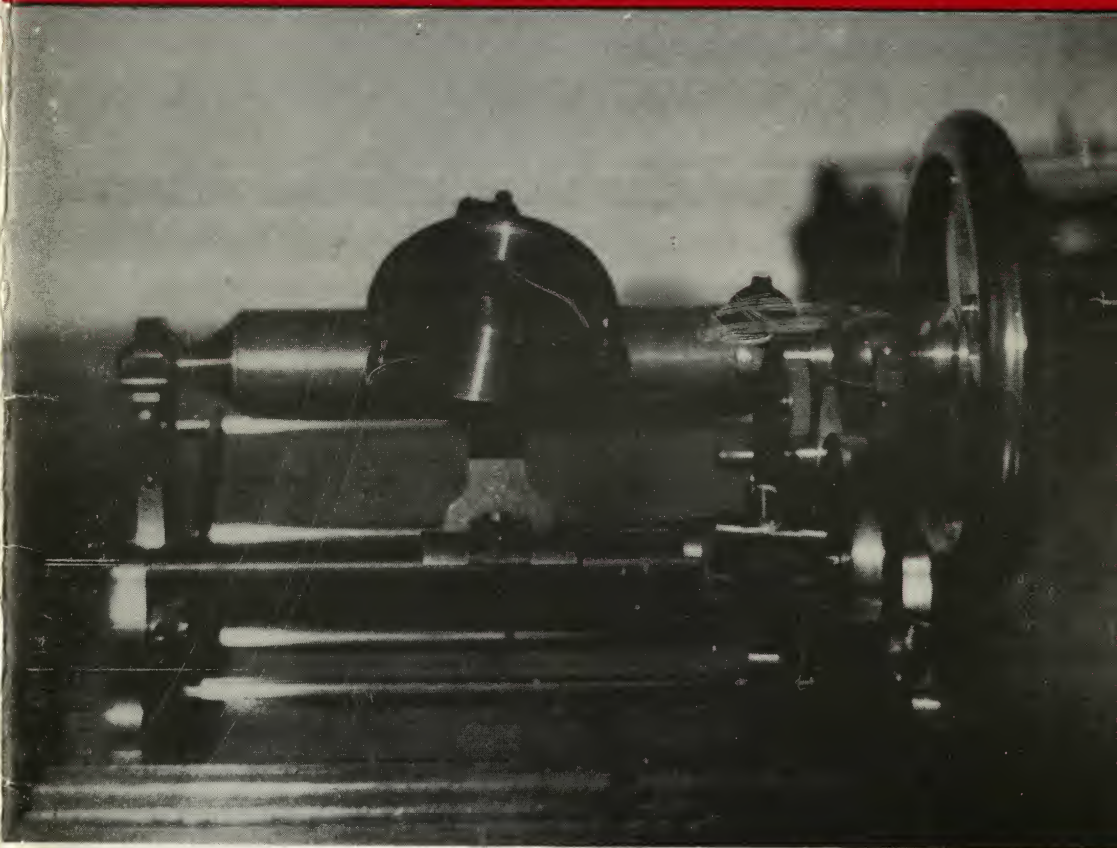


No.161 April 1988

Hillandale

NEWS



IN THIS ISSUE:

Technology of the Graphophone

by Mike Field

How to make Cylinder Recordings
Paulo M Gruppe: An Edison Artist
Small Records

by Denis Harbour
by Chas. W Oliver
by Frank Andrews

HOW THE GREAT JAZZMEN REALLY SOUNDED!

JAZZ CLASSICS
IN DIGITAL STEREO

	Album	Cassette	CD
Vol 1, New Orleans	REB 588	ZCF 588	BBC CD 588
Vol 2, Chicago	REB 589	ZCF 589	BBC CD 589
Vol 3, New York	REB 590	ZCF 590	BBC CD 590
Louis Armstrong	REB 597	ZCF 597	BBC CD 597
Fats Waller	REB 598	ZCF 598	BBC CD 598
Bix Beiderbecke	REB 601	ZCF 601	BBC CD 601
Bessie Smith	REB 602	ZCF 602	BBC CD 602
Johnny Dodds	REB 603	ZCF 603	BBC CD 603
Jelly-Roll Morton	REB 604	ZCF 604	BBC CD 604
Duke Ellington	REB 643	ZCF 643	BBC CD 643
Joe Venuti/Eddie Lang	REB 644	ZCF 644	BBC CD 644
Hot Town	REB 647	ZCF 647	BBC CD 647
Classic Years: Swing – Big Bands	REB 655	ZCF 655	BBC CD 655
Classic Years: Swing – Small Groups	REB 666	ZCF 666	BBC CD 666

The HILLANDALE News

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Founded in 1919

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UK.

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THE NEW VOLUME of "The Hillandale News" commences with this edition, and with it comes a new size and a fresh format. Since our Chairman discusses these changes in the body of the magazine, I will confine my observations to the most excellent bill of fare on offer within the pages of this edition.

Charles Oliver's article provides us with a rare glimpse of an Edison artist, whilst Denis Harbour's article "Cylinder Making" chronicles a lost art - and, incidentally, pacifies a number of readers who have asked for more information on this subject. Frank Andrews' researches in this edition turn to under-25s: size, not age. However, we must look to our Treasurer, Mike Field, for the key article about the Bell-Tainter Graphophone, complete with illustrations. Incidentally, readers might wish to know that the Bell-Tainter machine he writes about is actually the one he was commissioned to make for the Science Museum in London. Based on Mike's meticulous researches at the Smithsonian Institute in Washington D.C., the machine is a triumph of his skill as an engineer, and something for which he should be warmly congratulated.

The new format increases available space by 20%, and so I must urge you all to consider writing even more articles, letters, etc. All are welcome. We have set new standards with this edition, standards that I hope can be built upon.

Peter Martland

A Link with the Past

by Charles W. Oliver

I AM NOW WELL on the wrong side of 70, and my recollections of the phonograph go back to childhood. Sometimes on Sunday afternoons when the weather would not allow us youngsters to play outside, we settled in our friend's house, when his father would bring out the precious Phonograph. It was a smallish model with a rather short metal horn, and the sound reproduced was rather tinny. Some of the records I can just about remember: Harry Lauder; The Anvil Chorus, and others. They were usually introduced by "This is an Edison-Bell Record." Those days and that particular instrument have long since passed away, and it was not until many years later that I again came into contact with a phonograph.

It happened about fifteen years ago when an elderly neighbour, living alone in a large house, and incapacitated by a stroke, decided to empty the upper rooms of her house and live on the ground floor. She and her late husband had lived there for many years, and there were possessions from the past including a phonograph and cylinders. Hearing that she was about to call in a dealer to take away the whole lot, I suggested that I would like to have the phonograph at the dealer's valuation: and so it came to me, for the princely sum of £10.

It is a handsome machine, an Edison Concert Phonograph of the period (?) 1911-1914. The box in which it is mounted is of mahogany; the delivery end of the horn, about 20" diameter, is of mahogany lamina, beautifully crafted. Inside the box is still a small tin of Edison grease! There are 114 cylinder records, mostly in their original cardboard cases.

There would be little point in trying to give here details of the records: most readers will be familiar with the type of subject matter. For my own benefit I have catalogued them as Vocal, Instrumental, Recitation, and Comedy. The vocals include operatic arias by Albani, Galeffi and others; songs by Peter Dawson, etc. The recitations are mainly by Bransby Williams (The Green Eye of the Little Yellow God, etc.). Instrumental includes bands, orchestras, cornet, banjo, guitar, xylophone, and other solos. They are largely Blue Amberols. There are also some three dozen others, described as "International

Phonograms", unusable because the tracking pitch is unsuitable for my machine.

Amongst my many follies I am an amateur musician, and play the 'cello with more enthusiasm than expertise. One of my prized instrumental cylinders is a (much truncated) Rondo Op. 94 by Dvorak, played on the 'cello by Paulo Gruppe. In 1978 I found in Baker's Biographical Dictionary of Musicians an entry for Paulo Gruppe, who would then have been about 86. His last known address at that time was in New Mexico.

Knowing that Pablo Casals had lived well into the 90s I thought it possible that this other 'cellist might well be still with us, and if so he might like to know that his recording of so many years ago was still being heard. I therefore decided to make contact, and drafted a letter to him. This I enclosed with a covering note addressed to "The Editor, The Local Newspaper, Albuquerque, New Mexico", explaining my quest and that I was looking for a needle in a haystack. I suggested that if it were established that Mr. Gruppe was no longer alive they should destroy the letter. I had no great faith that my enclosure would find its target, and in fact weeks passed, and I more or less put the matter out of my mind.

Imagine, then, my surprise and delight when in June 1978 I received a long letter from Mr. Gruppe, by now living in New Haven, Connecticut. My original letter had apparently passed through many hands before reaching him.

Much of his reply, given below, is perhaps of more interest to 'cello players than phonograph enthusiasts:

[REDACTED] New Haven, Conn.
15th June 1978

Dear Charles Oliver,

Your letter finally reached me after going through an amazing number of hands and spirits of good will. It will take me some time to write letters of thanks to all of the participants in forwarding.

Just a few months ago I gave all my old Edison records to Yale University here in New Haven. They have an extensive old record library.

I made the Edison records at the age of nineteen and I had the privilege at that time of meeting Mr. Edison himself. Apart from his genius as an inventor he was also a wonderful man and he made a lifelong impression on me.

Enclosed is my article about him from the American String Teachers' Association Magazine. I sent this in many years ago. At present I am re-editing and playing Moor's Concerto for Two 'Cellos, Suite for 'Cello by Mortimer Wilson, and 'Cello Sonata by Casella. These are three unknown masterpieces for the 'cello repertoire. We make recordings of them in August at Yale. I send you all this information because you were interested enough to enquire about me. I am eighty-six years old but very young when I play the 'cello.

I have just discovered a new way of cutting a bridge which would excite even Stradivarius. It can apply to all bridge instruments but is most beneficial to 'cello and bass. I have cut more than three hundred bridges over my lifetime. Every 'cellist should cut his own bridges, set his own sounding post, and regulate his tailpiece length if he is a professional.

Pablo Casals taught me when I was a boy, alone, in Paris. He was familiar with all 'cello problems. I remember he once

said to me: "I play my best at a concert and the next morning I cannot find E on the D string."

He would be greatly surprised if he played on my 'cello today. I could not play on his 'cello because there was too much resistance for me - I do not know what he did to achieve this. He would spend hours at the luthier's, cutting bridges. My bridge contradicts the usual way of cutting. It is based on a new principle - added to the old principles.

With best wishes to you,
Sincerely,
PAULO M. GRUPPE

Enclosed with this letter was a signed photograph and an article from the New Haven Register describing Gruppe's meeting with Edison. Part of the article is reproduced below.

"Edison often requested some of his recording artists to come to his workshop and play for him, and one day I received a communiqué that he would like to meet and hear me, even though by then he was very old and rather deaf. Like Beethoven, he used an ear trumpet when listening to music. Naturally I was extremely honored. The appointment was for 11.am, and with a musician's training for promptness I was on hand 10 minutes early. At the appointed moment a sharp, prepossessing gentleman greeted me and apologized that Mr. Edison was at a crucial point in a meeting, and asked if I would mind waiting until 11.30. "Of course not," I answered, in awe of the occasion. Precisely at 11.30 another equally distinguished looking gentleman appeared and asked if I could please wait another 15 minutes, to which I also answered in the affirmative. Then, at 11.45, still a third gentleman approached me and said that although the meeting had ended, Mr. Edison was tired, and would I please wait until the great man had had some lunch and a few minutes rest ?

"That was the moment when youth came into its own, and I arose and in a ringing voice instructed Edison's horrified

assistant to tell Mr. Edison that by that time I would be halfway back to New York. No sooner had I blurted out those fateful words than I heard a voice behind me saying gently, "Sorry to have kept you waiting, Mr. Gruppe." I turned to see a grey-haired man with clear blue eyes that twinkled and seemed to smile by themselves. Without waiting for a reply he said warmly, "I hear that you come from Holland. Some of my folks came from there too - a mighty fine country. Tell me, how is it in music? Do you think about it continually like us inventors, or do you do other things as a counterbalance?" By then I had regained my composure, and I said with no premeditation that I liked inventing things and that it came easily to me. When Mr. Edison heard that, I sensed that we were buddies immediately.

"Was I having any good ideas lately?" he asked. "Why, yes," I said, "and it has to do with your phonographs." I explained that I wanted to apply his recording principle in an effort to beautify cello tone by letting the bridge over which the strings are stretched take the place of the needle and the cello itself take place of the horn. After learning how I planned to accomplish the feat utilizing mica Edison pondered for a moment and then said "It's a wonderful idea but it won't work." Youth coming to

the fore again I found myself telling this great genius - "No! You don't understand!" With great kindness he replied "Yes, yes - we inventors are like that. We have an idea, and deep down inside we know it can be accomplished but can't explain it. Do you have a cello you don't mind cutting up a bit?" I told him I did indeed and he said, "Fine. Come out here to the laboratory and work on your idea and I'll see that you have technical assistance and all the tools and materials you need." Naturally I accepted, and when the fateful moment came several weeks later, I tuned the cello and played a passage. Alas, it was a failure. The tone was entirely unlike a cello and not even as good as a phonograph reproduction of cello sound. I was mortified, of course, but the kind old man said in a most consoling tone, "Well, that's okay. It was still a damned good idea!"

George Frow tells me that about the time of my letter (1978) he actually heard Paulo Gruppe play at a reunion of Edison recording artists. Sadly, Gruppe died some months later. Had I delayed writing another few months I would have missed the chance of making contact with this venerable musician. I need hardly add that the record is now worth more to me than all the others in my collection.



75 Years Ago

from The Talking Machine News
February 1913

DEATH OF VAN BIENE

THE TALKING MACHINE World as much as anybody will regret the death of the celebrated actor-musician, Auguste Van Biene, who died with dramatic suddenness last week while playing at the Brighton Hippodrome, falling unconscious on the stage, as the *Daily Chronicle* says, "in full view of the audience and passing away in the wings soon after the curtain had been lowered."

The famous 'cellist was appearing twice nightly in his musical sketch, "The Master Musician." The scene is laid in a garret, Mr. Van Biene taking the part of

IMPORTANT NOTICE

THE RETURN OF A SIGNED membership renewal form coming to you with your magazine, is a receipt acknowledging payment, and proof of membership for this year. The old-style membership card will no longer be used. Members have been mistaking the signed forms for a further demand, and have been returning them either with another (additional!) cheque, or with a query. This causes considerable postal and stationery expense and much unnecessary work for the Treasurer. He would be so grateful if members would desist. **REMEMBER!** A form signed by the Treasurer at the bottom means no further action is required. **UNSIGNED** forms are a request to pay.

an old music-master who has fallen on evil days, and is practically starving. In the play, the little lodging-house slavey, to whom he shows many kindnesses, and calls his "little sweetheart," asks him to play an air. He sits down, begins to draw melody from his 'cello, and suddenly falls back in his chair overcome by illness and hunger.

By a dramatic and tragic coincidence this very point in the sketch had been reached when the musician drew his bow across the strings. But, in a phrase he had made famous, it was "A Broken Melody," for he fell back unconscious in grim reality. The audience thought it all a part of the play, but those near saw that it was something more, and the curtain was hurriedly rung down. Mr. Van Biene was carried into the wings, and a doctor was telephoned for, but before medical aid could be given the famous musician was dead. In the meantime the programme was finished, and the audience left without knowing of the real tragedy they had witnessed.

Mr. Van Biene's son was conducting the orchestra at the moment of his father's fatal seizure. Not more than a fortnight ago the veteran actor-musician was recording for the Edison Bell Co., for whom he has made several titles, while a number of Zono records are also issued of his playing. Mr. Edward Hesse, of J.E. Hough Ltd., informed us that the old man had seemed very unwell after his recording performances, when he made a record of his own "Cradle Song" and of "Home", the number which he was playing in his dying moments. Among other E.B. records are "The Broken Melody" and "The Phantom Melody" on one disc, and Gounod's "Ave Maria" and "Kol Nidrei" on another.

Letters

Dear Mr. Martland,

As a pendant to Mr. Andrews' comprehensive analysis of the history of "His Master's Voice" catalogues, may I add a few words about "Opera at Home", a volume which lists all "His Master's Voice" acoustic operatic recordings ?

"Opera at Home", 20,000 copies of which were published in 1920 in a "popular" edition, was subsequently enlarged and reprinted in 1921 and again in 1925 in "library" versions. This last edition runs to some 470 pages and gives summaries of the plots of 166 operas, of which no less than 19 were recorded "complete." Additionally, the background to each individual excerpt recorded is described, and there are 38 delightful full page illustrations of "star" performers in costume, together with a dozen photographs of artists visiting Hayes. The book is dedicated to the imperishable memory of Enrico Caruso and Adelina Patti (who had died in 1921 and 1919 respectively.)

Some of the operas from which excerpts were recorded are, by present day standards, esoteric to say the least. I doubt whether there are any current recordings of "Cristoforo Colombo" by Franchetti, or "Quo Vadis" by Nougues. I have no idea of the original asking price for this book but it is now invaluable, including as it does much information not contained in Kobbé, together with rare photographs of legendary singers.

Yours sincerely, Alan Sheppard
16th February

The Under Twenty-Fives

A History of British Disc Records
of less than 25cm (10") Diameter

by FRANK ANDREWS

Part 1 - EARLY DAYS

ACCORDING TO ALFRED LOMAX who imported them in 1899, the first gramophone records of under ten inches to come to Great Britain were marked "E. Berliner's Gramophon", and the earliest advertisement for them was in **Bazaar, Exchange & Mart** in February 1891. Six were offered with the little hand-driven Gramophone by Percy J. Packman, trading as "The Gramophone." He was later to become prominent in the British talking machine industry as a recording engineer and company promoter.

These little records were five inches across and recorded on only one side. They were made in Germany by The Rhennisch-Gummi and Celluloid Fabrik in Neckaren, near Mannheim, on behalf of the Grammophon Factory Department of Kaemmer, Rheinhardt & Co. in Waltershausen, Thuringia.¹ Some faces or reverses of these 5-inch records carried a cruciform trade mark formed from the word WALTERSHAUSEN and impressed in the material.

Emil Berliner had invented the Gramophone in the United States in 1887, but appears not to have been able to establish production there until 1894, but a visit to Germany to show off his invention resulted in Kaemmer, Rheinhardt getting a licence to exploit the Gramophone and its records. In a recent claim Deutsche-Grammophon said that discs and machines had been on sale in Germany as early as 1889. These 5-inch records were still advertised by a London stockist in 1896.

During 1894 Berliner managed to organise The United States Gramophone Company, and records were put on sale by the end of the year, using his patents. They were now seven inches across and marked "E. Berliner's Gramophone" in the United States until 1900.² With the need to form a separate recording and manufacturing concern with research facilities, The Berliner Gramophone Company was founded in the autumn of 1895 with Berliner himself - a minority stockholder - as the director of the recording laboratory. To bring its products more to the public's notice, an advertising agent called Frank Seaman became in October 1896 the Sole Sales Agent for gramophones and records in the United States, except for Washington, D.C. The National Gramophone Company was organised to handle this new line, taking over smaller concerns that had been dealing in Berliner products, and the New York branch went in for booking talent and recording on its premises.

The exporting firm of Prescott Brothers³ undertook overseas shipping for Seaman's National Gramophone Company, and thus it was that American-made Gramophones and Berliner discs began to arrive in Great Britain. Some of the Gramophones were spring-driven.

The next seven-inch discs to be sold in Britain were the E. Berliner's Gramophone records from the Gramophone Company, a syndicate formed in London in April 1898. The New York manager of Seaman's National Gramophone Company had come over in 1897 to set up a company to exploit Berliner's British letters patent, and while doing so had also helped to expand the National Company's gramophones and records business. This was William Barry Owen. With British investment the new Gramophone Company became established in Maiden Lane, London W.C., where in July 1899 Fred Gaisberg arrived to organise its first recording studio. Commercial recording began in the following month and the first finished

1. This firm also made dolls, and a talking doll with a 3-inch record was earlier seen in New York in May 1890.

2. A 5½-inch disc of this period is known with a B-prefixed catalogue number.

3. Premises were in the Edison Building on Broadway.

discs were ready in November, well in time for Christmas. The records were processed at Joseph Berliner's Telefon Fabrik in Hanover, with Deutsche-Grammophon in charge of production.

In 1899 small solid wax vertical-cut Graphophone records were imported from America for the children's Disc Graphophone.⁴ They were about four and five-eighths inches across and had a large spindle to fit the machine. From the first The Gramophone Company was restrained by Edison Bell Consolidated Ltd., who claimed infringement of its Edison and Bell-Tainter patents. Edison Bell had failed to secure Berliner Gramophone business for itself. Across in the States Seaman was in dispute with Berliner Gramophone over profit margins, and his National Gramophone Company was being pressed by Columbia, claiming infringement of its Bell-Tainter patents. In the meantime Columbia was giving support to the new American Talking Machine, advertised as the Vitaphone, with red discs made under the special process of Joseph W. Jones.⁵

Frank Seaman and his National Company - at loggerheads with the suppliers and with the possibility of being closed through patent infringement - entered into agreement in 1900 with Columbia, giving him and his companies patent protection for the new Zonophone machine and records. These had started to appear in 1899.⁶

At that point Joseph Jones lost the patent protection for his Vitaphone machine and its red seven-inch record. Simultaneously the American Berliner machines and discs were enjoined, shutting down the (American) Berliner Gramophone Company in September 1900. The Zonophones now had a clear way and the exporting Prescott began sending out

Zonophones, many to Britain where The Gramophone Company had registered both "Vitaphone" and "Zonophone" as its trade marks to keep competition at bay. The original Universal and Zonophone discs were seven inch, some deliberately copied from Berliner stock. A new nine inch Zonophone was introduced in May 1901.⁷

Joseph Jones, now without any patent protection, came to Europe to establish his Vitaphone business free of patent vexations. His records were now made in various colours as well as red, but are rarely found today although many were sold, especially in Belgium.

The next seven-inch records were those from the International Zonophone Company of New York and Berlin, founded by Frederick M. Prescott in 1901,⁸ and in September the first European Zonophones went on sale. A ten-inch Zonophone was issued alongside the seven-inch, and these were to establish themselves as the standard sizes. American seven-inch, nine-inch, and later ten-inch Zonophones were to be included in the International Zonophone catalogue.

Examples of the five-inch single-sided brown material discs produced by Crystalate Manufacturing Company Ltd. are still to come to light. They were made at Golden Green, Hadlow, Kent, and were reputed to sell for 2s.6d. Crystalate made them alongside other plastic objects, some having a celluloid content. This new company was employing only twelve hands at the time. A founder and director called George Henry Burt had already supplied Berliner with a mix for his records in both the United States and at Deutsche Grammophon, and for American Zonophone, and his own Globe Record Company (Climax Records). Some of the first 7-inch Climax records are known to be the same as the Zonophones, simply because the recording engineer went from the one company to the other.

4. Only licenced Edison Bell dealers could handle these.
5. Jones had earlier worked alongside Berliner in the Philadelphia laboratory of Berliner Gramophone Company, founded by a close relation, the singer Will C. Jones.
6. Produced by Seaman's Universal Talking Machine Company, formed in 1898.

7. By the National Gramophone Corporation of 1899, successor to Seaman's National Gramophone Co.
8. One of the Prescott brothers who were exporting gramophones and Berliner discs to Europe from New York in the 1890s.

In the United States Columbia undertook to promote the first Climax records in late 1901, but failed to make a bid for The Globe Record Company, and in January 1902 woke up to find that Eldridge Johnson's Victor Talking Machine Company had got in first. When The Berliner Gramophone Company closed in 1900, Johnson's business had found itself in trouble, although he had managed to supply The Gramophone Company in Great Britain. Johnson had then gone into record production himself, though fearful of being stopped as a patent infringer. By buying Globe he had deprived Columbia of any Climax record trade, but he was willing to resell Globe to Columbia in return for an agreement absolving him of any patent infringement. He sold Globe to Columbia in February 1902, giving Columbia its own disc recording and manufacturing business, and Climax records began to be sold from the London branch. For the new 1902/3 season, the Climax label was changed to Columbia Disc Record in the September, all former Climaxes becoming Columbia Disc Records on reprinting.

The E. Berliner Gramophone discs, now the product of the London-based Gramophone and Typewriter Limited, also underwent a name change in the late summer of 1902. The seven-inch records were given paper labels and styled Gramophone Record, and the November Stock List was the last to show a Berliner disc on its back page.

Nicole Frères London branch was dealing in Zonophone machines and records, and began what it called its own account, starting prototype work on recording, galvano making, and pressing. This led to the Nicole Record Company Ltd. being formed in July 1903. By the next month there were sufficient records to form a catalogue, with Nicole Records to be on sale by the October. George H. Burt was again involved, being a director of the Crystalate Company, who supplied the formula mix for the surface of the seven-inch Nicoles, which had a compressed card base. Burt became a director of Nicole Records.

A small disc, very similar to the

record for the Columbia Children's Graphophone, was the Stollwerke Chocolate Record.⁹ These vertically-cut records were impressed in the foil covering the chocolate from which the record was made. Other types were made, some in wax and some on a coated compressed card base.

In Germany a vertical-cut disc on a compressed card base had been on sale since March 1904. This was the 7½-inch Neophon record, an invention of Dr. William Michaelis who later transferred his business to London where Neophone Limited was formed. The white-coated surfaces were described as an enamel, used also on a companion 27 cm. disc. It was claimed by Joe Batten that the success of the Crystalate business was built on the Neophone records, but this is doubtful.

Before the Neophones were sold here, and following the acquisition of the International Zonophone Company of Berlin by The Gramophone and Typewriter Company, Frederick Prescott, now out of a job, set up The International Talking Machine m.b.H. in Berlin, and followed his Zonophone records with Odeon. These were sold through Europe from February 1904, the smaller of the two sizes being 7½ inches.

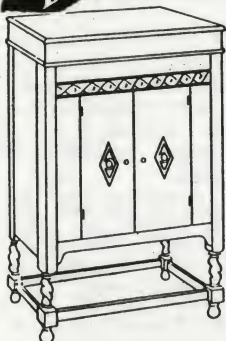
The Società Italiana di Fonotipia was founded in Milan in 1904, and first sold its records in Great Britain in March 1905. A 7½-inch disc in a 9500 series was offered in Germany in 1909, but it is not certain that this was available in Britain.

With 7-inch Nicole records at 1s.0d. and 7½-inch Neophones at only 6d. each, Gramophone and Typewriter was looking for a way to force them off the market. At one point agreement had been reached to buy out Nicole Records, but there were too many complicated contracts to honour and litigation had led nowhere. Therefore G & T decided to produce an unbreakable record at a similar price. The Victor Talking Machine advised against this, but through its International Zonophone Company, G&T placed a 5-inch

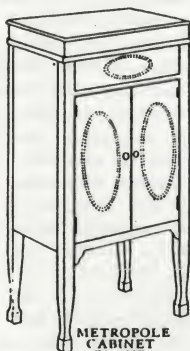
9. Given mention in Talking Machine News in 1904.

1/6 BRINGS YOU A METROPHONE PORTABLE

DELIVERED FREE WITH 12 METROPOLE RECORDS



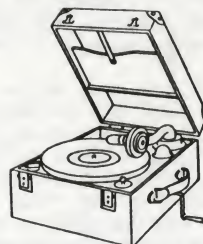
METROPOLE SEMI-CONSOL.
Model D. A distinctive Pedestal type.
With 12 Metropole Records 4/3 per week.



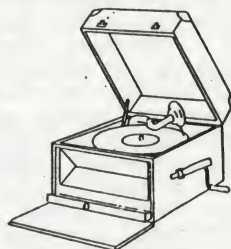
METROPOLE CABINET GRAND
Model E
An instrument of the highest class. In solid Mahogany.
With 12 Metropole Records 4/9 per week.



METRONETTE FEATHERWEIGHT PORTABLE.
Model A.
With 12 Metropole Records 1/6 per week.



METROPHONE PORTABLE.
Finished in imitation lizard skin. Can also be supplied in Black. With 12 Metropole Records 2/- per week.



METROPHONE PORTABLE GRAND
Includes all the best features of a Cabinet model with the handiness of a Portable. In Black with 12 Metropole Records 2/3 per week. In Tan, Crocodile or Red Grain, 6/- extra.



Registered Trade Mark

Metropole

GRAMOPHONES AND RECORDS

Zonophone disc on the market at 9d. in 1905. Although small, these records played better, if shorter, and Neophone replied with a 9-inch disc in February 1905 at the small cost of 6d. The following month G&T reduced the 7-inch Zonophones to 1s.6d., but twelve months later a further reduction to 1s.0d. was made to attract the public. As a result of this price-cutting, Nicole Frères and the record company went out of business at this time and its plant was taken over by the Disc Record Company Ltd., who continued to press Nicole records from existing matrices.

Not only were the Zonophones reduced to one shilling in March 1906, but from that date Gramophone & Typewriter ceased to put out further 7-inch records, and all were removed from the catalogue in June 1907.

The German record companies have long been at the forefront of record production and techniques, and so often were able to flood the British and other markets with records people were prepared to buy; two such makes were Beka and Homophon. In 1905 the Beka Record of 8 inches was offered for 1s.3d. and 2s.6d. single or double sided. The company also offered an unbreakable 8-inch Auto Record, but this was never heard of again after the first announcement. In March 1906 7-inch Beka records for one shilling were introduced; little wonder the Zonophones were dropped to a shilling also that month! Double-sided 7-inch Bekas cost 2s.0d. Homophone 10-inch records came to Great Britain in June 1906, when its 5-inch Lilliput records arrived. Lilliputs, like Beka's Autos, are very hard to find today, as are the musical postcards from Eltinge and Co. of Long Acre, London, sold at this time.

Favorite records of 7-inch size were advertised in September 1906 at the same time as ten and twelve inch sizes, and in single or double-sided form, but are not mentioned subsequently.

While Nicole records were being pressed at Saffron Hill, London, sub-contract work had produced discs called

Empire Record, but the label's owner is not known. The masters now belonged to The Disc Record Co. Ltd., and another 7-inch unbreakable was pressed as The Universal Record, possibly for The Universal Talking Machine Co. Ltd., of London.

The next sub-10-inch sized disc on the market was put out by Pathé Frères in London, and was the fourth vertical-cut make to appear in Britain. This was the 8½-inch double-sided Pathé Disc, and came on the market in August 1907. It was joined in the 1908-9 season by the 24cm. Pathé Disc, of about 9½ inches diameter. Except for these two Pathé Discs and the 7-inch Zonophones, all former "under-ten-inchers" had disappeared from the market.

A new 8½-inch vertical-cut disc should have come on sale in August 1908, but was delayed until November. This was Edison Bell's Phonadisc, manufactured by Edisonia Limited.¹⁰ The new Phonadiscs were recorded either off master cylinders - as were the Pathé Discs - or simultaneously with cylinder records, as there is sometimes an announcement each side of a disc even though the item is intended as one continuous piece of music.

Soon after the appearance of the Phonadiscs, a serious fire occurred in part of the Edison Bell works. Already in financial difficulties, Edison Bell and Edisonia were sold of in 1909 to James E. Hough, the manager of both; the two were combined into J.E. Hough Limited, but the Phonadiscs were no longer made, leaving Pathé as the only producer of discs under 10 inches. In December 1909 however, Hough released 9-inch Little Champion vertical-cut records; they cost 1s.3d. and were made of a new compound called Vitaroid, but they were late for the season and survived only until the following March.

Pathé dropped its 8½-inch size in 1911, and became once again the only producer of "under 25" records on the

10. Earlier in the May, Edison Bell had put out its first disc in sixteen years of trading. This was the 10½-inch Genuine Edison Bell Disc Record.

British market with 24cm. (9½-inch) discs. These continued through to August 1914, apart from a small machine and records being introduced briefly in September 1912 by M. & A. Wolff of 19-21 Fore Street, London E.C.; this was the Mignon, with 6-inch double-sided discs of that name, recorded in London and pressed by Beka in Berlin. Few titles were offered in this 41,000 matrix series, and they did not attract the public after the first issue.

The outbreak of the Great War in August 1914 brought a short series of patriotic titles on 6-inch Baby Odeon Records from Carl Lindström (London)

Ltd., a company sharing its Hertford factory with Lindström's Fonotipia Ltd. These little records were made anonymously by the Band of the Grenadier Guards, and uniquely, their numbering started at the year of issue, i.e., 1914. Earlier, Fonotipia had marketed some small Jumbo records of 5-inch size, probably in August 1908, and distributed by Barnett Samuel and Sons Ltd. One of these, marking the death of King Edward VII in 1910, had a reading of words composed by Queen Alexandra with the National Anthem on the reverse, and another Special, No.1000, celebrated the accession of King George V.

To be continued



A New Look by Ted Cunningham

UNLESS YOU ARE a newcomer to the Society, and reading "The Hillandale News" for the very first time, you can hardly have failed to notice that there are one or two differences about this edition. The change of size is long overdue: we really could not continue any longer publishing in the obsolete Imperial folded foolscap, but we had to wait until the commencement of a new Volume to avoid giving you two different sizes to go into your binder. The paper is a better quality. It is also heavier, which at first impeded its adoption, as it would attract more expensive airmail charges for our overseas members. The solution came in the shape of another of the changes you will have noticed: the polythene mailing pack which replaces the usual envelope: its lower weight brings the airmail charges back where they were in the first place.

It had been our intention that by now the magazine would be produced by means of a computer, and it is a personal disappointment for me as well as for all those concerned with the Hillandale's production that this has not

proved possible. The equipment we wanted we couldn't afford: the equipment we could afford would almost certainly have proved inadequate. And so the magazine is still produced, as it always has been, on a typewriter. We are not giving up on the computer, and have every intention of raising the necessary funds, without increasing your subscriptions for the purpose. Perhaps we will achieve this aim, who knows, by the time the next Volume begins in two years' time. And that explains yet another innovation with this issue, the inclusion of paid advertising. We hope to continue to attract advertisers, and the income they provide will be put aside for that purpose. So support our advertisers if you can, because they are supporting us.

John (Bookshelf) Booth, through his company Anchor Print, will not only be printing the journal but also packing it into those polythene containers and posting it off to you. Between us all we are hoping to encounter as few teething troubles as possible. So good luck to the new-look "Hillandale"; but one day those old wind-up magazines will be sought after, so remember, we still have stocks of back numbers.

The Bell-Tainter Graphophone

by Mike Field

THE INVOLVEMENT of Alexander Graham Bell and the Tainter brothers in the development of talking machines is a matter of history and is well documented. Bell used the money he received in recognition of his work on the telephone to set up the Volta Laboratory where the feasibility of using wax as a recording medium was demonstrated by experimenting on an Edison tinfoil machine on which the cylinder grooves were filled with beeswax. Following these early successful (sic) experiments a small hand-cranked machine was produced in 1886 which became the first Graphophone (ignoring the modified Edison machine). While there are many published instances of a wood cut showing Bell and Tainter operating and listening to this machine, actual examples and detailed photographs seem to be extremely rare. This article seeks to redress the situation somewhat and is based on the machine displayed in the Smithsonian Institute in Washington USA to whom acknowledgement and thanks are due.

Fig 1 shows the machine with the large recorder in the centre and the reproducer at the right. Normally the latter is removed for recording but it is included in the photograph to show how it would appear in use. It should of course be straight but somehow it became tipped during photography.

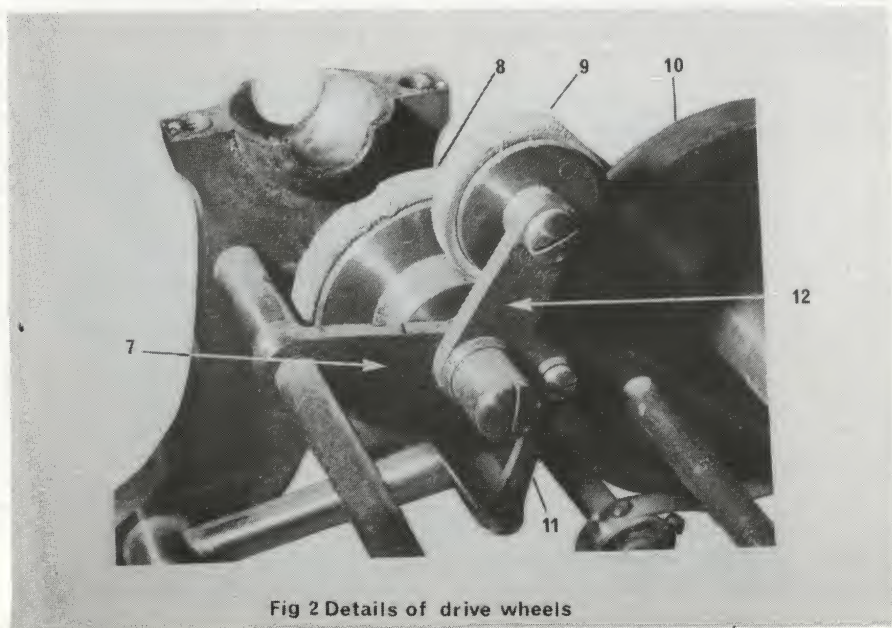
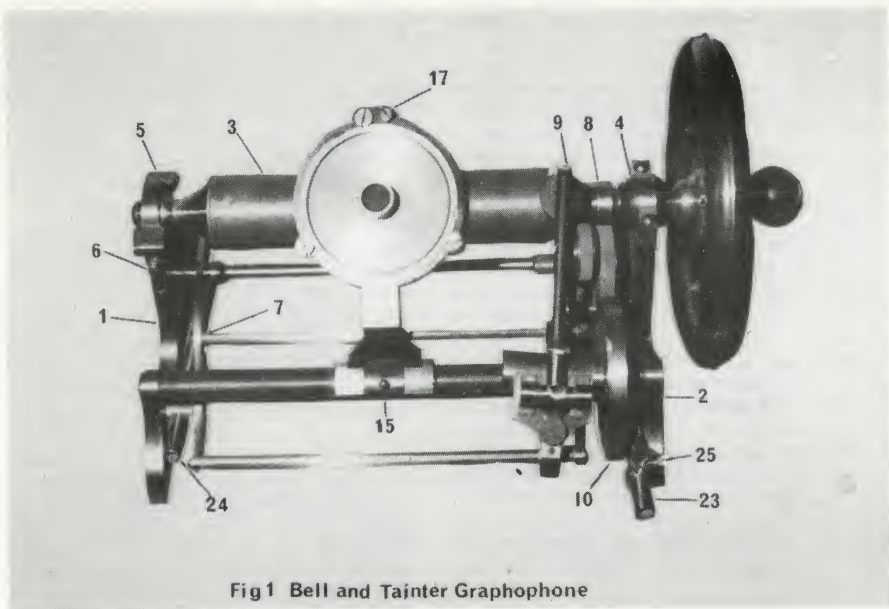
Referring to Fig 1, the basic frame of the machine consists of two brass castings (1) and (2) fixed together by $\frac{1}{2}$ in. diameter brass tie rods 8 inches in length. Looking from the front, the right hand casting incorporates a circular cup. The shaft of the 1.25in. cylindrical mandrel (3) incorporates a ball shape which "sits" in the cup and is secured by the cap (4). The other end of the mandrel is secured by a spring-loaded gate (5). Thus the mandrel is free to rotate on the single ball bearing at the right hand side and within a captive sleeve bearing secured by the gate at the left hand side. When the gate is released by the push button (6) the mandrel is free to spring upwards sufficiently to slide a cardboard wax coated cylinder on or off.

Pivoting on the rear tie rod is a frame (7) which carries a forward drive wheel (8) and a reverse drive wheel (9). A "sandwich" construction is used for both wheels in that a disc of rubber is clamped between two brass cheeks. The frame is spring-loaded so that the forward drive wheel is kept in contact with both

the mandrel and the feed screw drive wheel (10). Turning the handwheel clockwise rotates both the mandrel and the feedscrew which causes the recorder or reproducer to move to the right. If the frame is held downwards against the springs, the forward drive wheel is disengaged and the link (11) forces the lever (12) upwards. The reverse drive wheel is mounted on the lever and is therefore forced against the mandrel. Fig 2 shows the detail of this mechanism. Clockwise rotation of the handwheel will now rotate the feedscrew in the opposite direction and so return the recorder/reproducer to its start position. Due to the smaller diameter of the reverse drive wheel the speed of return will be faster than that during the recording process.

Why the inventors elected to use rubber drives is not clear to me and I assume simplicity was the reason. Such an arrangement is prone to slipping; hence the reproducer rate of progress along the cylinder may not be in step with the recorded grooves, and in consequence groove jumping will occur. Moreover, if simplicity was the reason, the incorporation of a reversing system seems to be an unnecessary complication - it would not be too demanding to rotate the hand-wheel anticlockwise!

The feedscrew itself is 32 threads per inch and carries either the recorder or reproducer. The recorder, Fig 3, is a

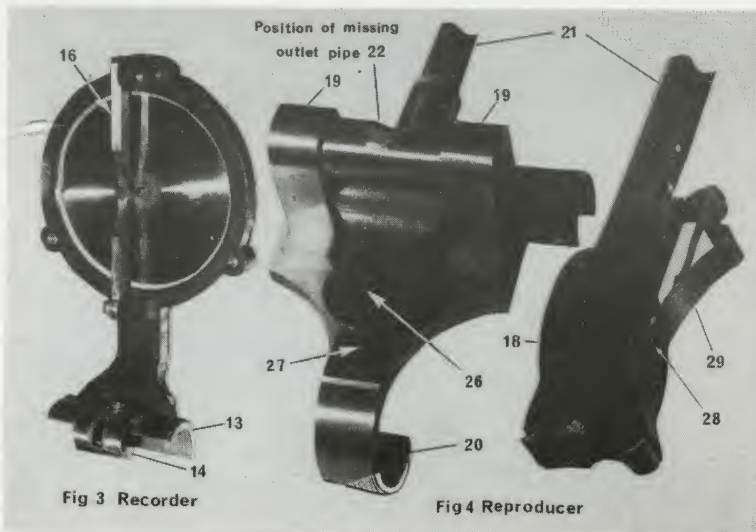


relatively heavy brass casting incorporating a diaphragm 2.75in. in diameter. A threaded half sleeve (13) locates on the feedscrew and provides the means of propelling the recorder along the mandrel. A steel guard block (14) can be rotated such that it presses against the rear of the feedscrew to prevent the recorder falling off or slipping out of mesh; the position of the guard block is set by pushing the small knob (15). Since there is no other support for the recorder the force of gravity will cause it to fall against the cylinder and without some restraint the sharp stylus point would cut deeply into the wax surface and render it useless. To prevent this, a bar (16) is fitted across the recorder just to one side of the stylus point. The bar is pivoted at one end and can be adjusted so that a small brass block in the centre of the bar is a few thousandths of an inch below the tip of the stylus. The block supports the weight of the recorder (it rubs on the cylinder surface) and the depth of cut can be adjusted as required by the screw (17).

When the recording is completed the recorder is removed and replaced by the reproducer (Fig 4) which is made as light as possible. The diameter of the head (18) is 0.875 inches and the hard rubber diaphragm is 7 thousandths of an inch

thick. The head and tube assembly is pivoted at the supports (19) and a round tail (20) rests on the front tie rod of the frame (7, Fig 1) to prevent the whole assembly rotating around the feedscrew. The sound waves are carried from the diaphragm by tube (21), through the supports (19) and to an outlet pipe (22). A rubber pipe connects this outlet to a similar connection in the centre of the rear hollow tie rod. The outlet pipe was missing on the photographed example; its position is indicated on Fig 4. The rear hollow tie rod is connected in turn to two delivery pipes (23) and (24) on Fig 1. The right hand pipe incorporates a "volume control" (25) which progressively restricts the pipe diameter and therefore the sound.

The reproducer stylus and its support is very delicate and fragile. The reproducer head and its long support tube, which is detachable, is partly counter-balanced by the flap (26) which also serves as a protection device when fitting or removing the reproducer. Pressing down the flap raises the head from the cylinder and keeps the stylus out of harm's way. A fixed stop limits the distance the pivoted head can travel in one direction relative to the support structure. A screw (not shown) adjusts the position of a spring strip (27) to set



the other limit position of the reproducer. In addition, because the tail of the reproducer rests on the front tie bar, pressing the bar down to engage reverse drive will rotate the whole reproducer assembly around the feed-screw and thus the reproducer head will be lifted off the cylinder surface.

The stylus (28) and the diaphragm are further protected by the spring guard (29) which rests on the surface of the cylinder in a similar manner to the recorder. In this case the position of the guard is not adjustable (except during manufacture) and the stylus just protrudes through the centre hole of the guard sufficiently to "sit" in the recorded groove.

The cylinder itself consists of a parallel cardboard tube coated with an even layer of beeswax. It was intended

(sic) for correspondence and dictation and could only be recorded once, in contrast to the later Edison internally tapered solid wax cylinders which could be shaved and re-recorded.

Pictures of Bell and Tainter operating the machine show an elliptical funnel being used for recording which may have been made from hard rubber. Acoustical headphones were used during reproduction and would have been connected to the outlet pipes (23 and 24).

Reasonably successful results can be obtained with the machine and it was clearly a great advance on its tinfoil predecessor. Contemporary opinions ranged from "so natural it brought tears to my eyes" to "at least one can tell when the piano stops playing in a cornet/piano duet!" So, even then, hi-fi was a subjective and contentious subject!

Revolutions in Sound

Colin Johnson has sent us another extract from the BBC Staff Magazine "Ariel", this time a follow-up to George Frow's report, in the February "Hillandale", of Jeff Link's forthcoming broadcast series "Revolutions in Sound."

Ariel, 18th November 1987

A SEARCH FOR the world's rarest records was launched today for a Radio 4 series celebrating the 100 years history of the gramophone record. The BBC North East series called "Revolutions in Sound" starts next May, giving producer Jeff Link six months to find material. He has asked the BBC Gramophone Library and the National Sound Archive for help, and has scoured private collections all over the country.

"I've also contacted the Library of Congress in Washington, which has

records dating back 100 years, some of which have never been played", he said. "The library has records made by Emile Berliner, and is trying to get permission from the Berliner family for the BBC to use them. We want to bring alive the whole repertoire of gramophone records, and we're more interested in the rare than just the old."

Particularly sought after are two test recordings made by Polish singer Jean de Reske in 1905. It was his only recording session, and he disliked the resulting discs so much he ordered them to be destroyed. Jeff Link hopes, however, that somebody shrewd thought to keep at least one of them.

Amongst the items already found for the series are a talking cigarette card, a recording of The Lord's Prayer and a tiny 1½ inch dolls' house version of God Save the Queen.

People are now urged to look through their attics for more examples. If any staff come up trumps, they should write to Jeff Link.

Regional News

by John Calvert

THE FIRST RESPONSE to the request for Groups to send in reports of what they are doing has been somewhat disappointing, and it is to be hoped that by the time we get to the June issue of "Hillandale" there will be more coming in. Regional Secretaries are asked to give their urgent attention to finding a reporter in their Group

The Clockwork Music Group, Newcastle upon Tyne

Phil Bailey writes to say that the Clockwork Music Group (which has been keeping the flag flying for some ten years) has never been able to maintain a membership of more than 5 CLPGS members and about 8 others; hence the name of the Group. He goes on to say that in spite of various publicity efforts the result is often disillusioning. During the past year the Group has had visits from John Booth, Paul Hartup, and Len Watts, who came up especially for a Pathé day. As Phil says, "It keeps us in touch with the South and vice versa." The Group's 1988 programme includes a talk on Beniamino Gigli by the Mastermind contestant John Taylor, a Talking Machine Day on September 24th with an audio visual presentation by Fred and Cyril Hay, as well as a special display of Edison items. For members who might be in the Newcastle vicinity, the Group meets on Saturday afternoons between 2.00 and 4.15 p.m., in the activities room of the Science Museum in Blandford Street.

Severn Vale Group

The Group has had a wide variety of meetings during the past year, due largely to the untiring efforts of Lawrie Wilson. During the summer Lawrie entertained the Group at his home, and members were able to see his collection of machines and records. During September the Group visited Aileen and John Calvert at Siddington. They had an afternoon not only listening to records, but also had a live song recital from two artist friends of theirs, Margrit Parfitt and Richard Kent, soprano and baritone.

They demonstrated it was possible to sing to a recorded piano accompaniment even if it were not ideal. The Group has also had a demonstration by Alan Tuddenham of his Sound Retrieval System. Lawrie Wilson gave a lecture recital of recently issued transcriptions of the Mapleson cylinders, and Don Watson presented his collection of some 300-plus machines, and also some of his large collection of operatic records.

The Group's first meeting of 1988 was an evening of jazz, presented by Richard Taylor. He covered the period from 1926 to 1943, with examples such as "Stock Yards Strut" played by Freddie Keppard's Jazz Cardinals and recorded in Chicago in 1926; "Blue Blood Blues" played by Blind Willie Dunn's Gin Bottle Four; and "King Joe" played by Count Basie and his Orchestra with Paul Robeson as vocalist.

Overseas News

It would be nice to hear from our Overseas members now and then, telling us what is happening in their country and, where they belong to a Society, what it is doing. By this means, not only shall we all keep in touch with each other, but our friends abroad may feel more a part of the Society, a comment I have heard from more than one member in Germany, reflecting the feeling that they are out in the cold.



Salesman : "Yes, Sir. This new patent needle is guaranteed to play 50,000 times."

Angus (a Scotsman) : "Aye, mon—but ye ken I' ha'e an awfa' job keeping a check on it!"

From the "Gramophone Critic & Society News", March 1929

London Meetings

by A.O. Leon-Hall

19th January 1988

VIOLINISTS ON RECORDS

A WHOLE EVENING given over to records of just one instrument might suggest a pleasure soon to pall, but Charles Levin proved this need not be so. His programme of violinists on record revealed the endless variety of tone and the prodigious diversity of emotion, not to say passion, which can be drawn from the violin by a great master exponent. He gave us eight examples: Jan Kubelik, Franz von Vecsey, Jenő Hubay, Leopold Auer, Eddy Brown, Vasa Prihoda, Ossy Renardy, and Jascha Heifetz. We heard records, some fairly rare, from his collection, and were shown slides, both of the performers and of the record labels.

Mr. Levin is a fluent and entertaining speaker, with the gift of infecting an audience with his undoubted enthusiasm for his subject. He has a great fund of knowledge of all concerning violins and violinists, and it was a pleasure to hear his lucid and extended replies to off-the-cuff questions from the audience. This made up somewhat for the technical presentation, which proved rather hit-and-miss. Misses included the slides, which were shown back-to-front very often; and the cueing of the taped examples, which could have been more precise to avoid the sometimes embarrassing pauses. A palpable hit, though, was the provision of a six-page typescript, which must have taken much effort to prepare, and which enabled everybody to take the lecture home with them. I will find it invaluable as a quick work of reference to these eight artists, with good potted biographies which I suspect are Mr. Levin's own work, and not cribbed from reference books. He took pains, both in his address and in the notes, to ensure that nobody left the building unable to pronounce the names of these great

violinists, even the difficult mid-European ones like Vecsey and Vasa Prihoda (respectively, Vé-che-i and Vásh-ya Pschf-hoda). As one who, on a bad day, could have trouble even with Eddy Brown, I found this attention to detail most helpful.

16th February 1988

"VO-DO-DE-O BLUES"

THE GENUINE SOUND of 1920s dance bands is currently enjoying a welcome return to popularity, even among normal people, let alone phono enthusiasts, so it is hardly surprising that Paul Collenette faced a packed house at Bloomsbury with his programme of dance music on Blue Amberol records, with not an empty seat to be found.

Readers rightly expect from me an objective report, so it is only fair to confess that I am a pushover for this sort of music, and can only promise to do my best. My objectivity was swept away by the time we had reached the third record (Nicholas Orlando's Orchestra playing the foxtrot "Ilo" [4368]).

We learned that Thomas Edison (who did not share my enthusiasm for the genre) was thrifty, not to say parsimonious, in his dealings with the dance bands engaged for these recordings. Their set fee was \$300, and this is thought to account for the fact that Edison dance bands were all fairly small ensembles, and rarely top line orchestras. A fortunate exception, for Edison and for us, was that most prolific of dance-band leaders, Sam Lanin, who began his career in Sousa's band, who at various times employed such notables as Red Nichols, the Dorsey Brothers, Glenn Miller, and Joe Venuti, and who died a millionaire (perhaps the only Edison dance-band leader to achieve this happy distinction) in 1977 aged 85. We heard his "Old Fashioned Girl" [4536], and many other gems, those from Polla's Clover Gardens Orchestra, B.A. Rolfe & his Palais Orchestra, Jack Albin's Orchestra, and Oreste & his Queensland Orchestra especially having that extra perfection.

CYLINDER MAKING

by Denis Harbour

SOME little time ago, a few people from one of the North London Universities, and not connected with the Society, were around for the evening, the main topic for discussion being the making of a cylinder. It resulted in quite a bit of research, my own knowledge on the subject being, at that time, not much greater than their own, but we all put our heads together and did a bit of experimenting. I thought the outcome might make an interesting article for the magazine. Not that I think producing a cylinder is in any way commercially viable: one can hardly imagine the HMV shop opening a cylinder department, thus forming a queue down the length of Oxford Street, but the article may prove useful as a guide to members who wish to make cylinders in small quantities, perhaps to distribute amongst other members. I will start by describing the equipment, and shall give references at the end.

RECORDING MACHINES

Ideally the recording machine should not be of the kind used for the reproduction of cylinders, because of the rather poor design of motor. The use of one of these machines would almost certainly cause wow, and if the cylinder is not perfectly round, or the wax not homogenous, or not mounted perfectly concentrically, there will be a noticeable flutter. (Wow is a slow variation in speed and flutter a more rapid one). It is better, therefore, to use a machine built for the purpose. One could certainly use some of the parts from an old machine, such as the lead screw, but the machine should be designed around an electric motor or a gravity-driven motor, the latter having at least a 50lb (22kg) weight. The mandrel should be accurately machined, having a taper of 1/8" to the foot, or 1 in 96. It should run in plain bearings, either cast iron or the sintered bronze type, such as those manufactured by Morganite named "Oilite". The ordinary centrifugal governor, using leather pads on a brass surface gives

poor results because the springs and weights have to be so carefully adjusted. Far better to use an eddy current brake or small generator loaded by a variable resistance. If an electric drive is chosen (a little more compact!) the motor should be of at least 1/50th H.P. This may be stated as inch ounces or grams per millimetre on more modern machines: it means that measured from the centre of the shaft, the power is equal to a weight hanging from an arm - of a given length - once the motor is up to speed: a half-pound weight on the end of a ten-inch arm would be 80 inch/oz. This is usually measured by a "prong brake" and ammeter. It is best that the motor is fitted with a flywheel, also one on the shaft of the cylinder mandrel. As portability is not required the machine may be built on a heavy gauge sheet of metal, perhaps 3/8" thick aluminium alloy. (Pure aluminium is rather difficult to work). The mandrel bearings and lead screw may be supported on simple blocks of the same material, faced on the lathe, reamed, drilled and tapped, and the sintered bearings pushed in perhaps using the drill press if only a light/medium force is required. The platform should be supported at its front edge if a drill press is used and a block of metal and a machine vice on edge, so that its adjusting screw can be brought up against the underside of the platform. Lubricate the bearings first by placing with one open end on the ball of the thumb, and slightly overfilling with the correct oil. Press the oil down with the forefinger so that it is compressed inside the bearing. This will force the old oil to the outside and replace it with new. Keep the bearing topped up and press several times if necessary. Never use vaseline on a sintered bearing. When the bearing is pushed home into the hole prepared for it, it should have a piece of ground stock of the correct diameter inside it. Otherwise the bearing will collapse and form a tight fit, taking a very long time to "run in." Gears and timing belts should not be used if avoidable, although it will be necessary to synchronise the lead screw to the mandrel. If a gear is used here the drive should be de-coupled from the mandrel using some kind of flexible coupling. Plain drive belts will

slip, however slightly, and synchronisation cannot be obtained with them. A worm type of gear is permissible if a good one. Any kind of recording on a disc or cylinder, especially if of the vertical type, varies in depth - the latter as a percentage of modulation. This, of course, changes the load on the recording medium, and therefore the motor, reflecting back from the cutting stylus. The effect can be minimised by the use of a sufficiently powerful motor and flywheels as mentioned. When electrical recording is used the cut can be deeper and more heavily modulated, because the cutter is driven by an amplifier, and gives a better signal to noise ratio, i.e., "louder" grooves, same amount of hiss and background noise, therefore a higher "ratio." I will write more of this in future, but it should be obvious that if a heavier cut is taken, and a higher modulation used, then the changes of load are even higher, and will need more power to drive the mandrel. There are, of course, a large number of factors that will affect the signal to noise ratio. If a cylinder is made, perhaps using an injection moulding process and a stable type of plastic material (material that will stay round in shape and have a good surface finish) it will be quieter, have much better wearing properties, and if accurate will not give the bump, bump, bump, experienced when playing the old ones.

The recording machine may be fitted with a device to shave a cylinder if wax is used, but as the rotating speed will be much higher, and the process is rather messy, a separate machine would be better. The rotational speed for a soft material when shaving will be of the order of 300-400 feet per minute at the surface, so a standard cylinder of 2-3/16" in diameter (4 1/2" in length) will need a speed of around 700 rpm or higher. This needs a fairly massive construction for a machine unless everything is carefully balanced and the cylinder is of homogenous construction.

One more thing to be considered as far as the recording machine is concerned is whether to drive the cylinder relative to the horn by: (a) keeping the horn

stationary and moving the cylinder (essential for "acoustic" or more correctly "mechanical" recording) or (b) arrange the recording head to move and the cylinder to be stationary. If the recording is electro-mechanical it does not matter which method is used.

If a stationary horn is being used then a number of methods may be tried.

(1) As the motor is not very large the whole machine can be made to drive itself past the cutter head.

(2) (suggested by George Frow). A telescopic drive may be arranged to drive the mandrel, having a thread cut on part of its drive shaft. A fine thread of 200 to the inch does not seem a very good plan, though. A telescopic drive could be excellent.

(3) A long pulley having a drive band arranged to slip along its length as the cylinder is driven across.

(4) Electro-mechanical synchronisation, using some form of three-phase interlock. If two motors are electrically synchronised, one can be used to drive the lead screw and the other the cylinder. They need not rotate at the same speed, and this will depend on the number of pole pairs to each motor, three pairs being the minimum for normal construction.

All rotating parts moving at more than just a few rpm should be dynamically rather than statically balanced. Many small engineering firms can undertake this kind of work.

Finally, the design of a recording horn may be of a shape developed at a later stage in the history of recording, using a pressure loaded diaphragm. The writer would not hesitate to use electro-mechanical recording methods, even if a recording with a severely limited frequency range is being produced. There is far, far greater control.

RECORDING MATERIAL

The recording material used right up to the late nineteen forties was some kind of wax. The formula was jealously guarded by the company concerned, some employees being sworn to secrecy. The recording industry would have improved itself at a much greater rate if

knowledge had been pooled; however, there seems to be no accounting for human greed. After 1940 direct-cut discs were possible, pioneered by Watts of "Dust Bug" fame. These were mirror-flat aluminium blanks sprayed with cellulose nitrate and a filler (usually black). They were maintained in the correct condition by adding a very tiny amount of castor oil and storing them in cans. They were separated from each other by spaces and by keeping an oil-soaked pad near to but not in contact with them. This method is still used, and can be more than a little dangerous as cellulose nitrate is highly flammable. It is more or less the same material as that used for car finishes. In modern studios or cutting rooms the swarf is removed during recording by vacuum, and stored in fireproof containers. An even later technique is the use of direct metal mastering where the cut is directly onto the metal.

From time to time it has been necessary to refer to disc processing because there are a lot of similarities. As technology developed in the disc industry after cylinders ceased to be made, it would be foolish not to take advantage of them where possible. As some cheap, but quite good, 45 rpm recordings for advertising and pop are produced at the present time, not by use of the usual hydraulic press, but by an injection moulding process, there would seem no reason why this method should not be used for cylinder manufacture. It would depend largely on the coefficient of expansion of the mould relative to the cylinder after it has been "grown" in the plating bath, also whether the actual recording could be released from the mould without damage, if material other than wax was used for the master. It would be relatively easy to produce some kind of a blank, not necessarily to fit on a standard machine, but simply to be standard. One would need to have regard to outer diameter and length, preparing the surface by anodizing or etching and spraying with cellulose and then to record upon it, or even directly onto the metal. If a barrier layer of an organic colloid, or a solution of potassium dichromate were applied before silvering, then the growing of the mould could take place - if one

can be made to expand/contract relative to the other by perhaps .002-.003". Food for thought! A process such as this would give far better results than the wax, as when moulding materials for cylinders it is easy to get blowholes and flaws that may not be observed until actually recording. Manufacture by dipping, of course, as in candle making, may remove this risk, but then dust may be a problem.

Two formulas are given in H. Courtney Bryson's book "The Gramophone Record" (Ernest Benn, 1935);

Burgundy Pitch	50%
Frankincense	25%
Colophony	9%
Beeswax	8%
Olive Oil	4%
Water	4%

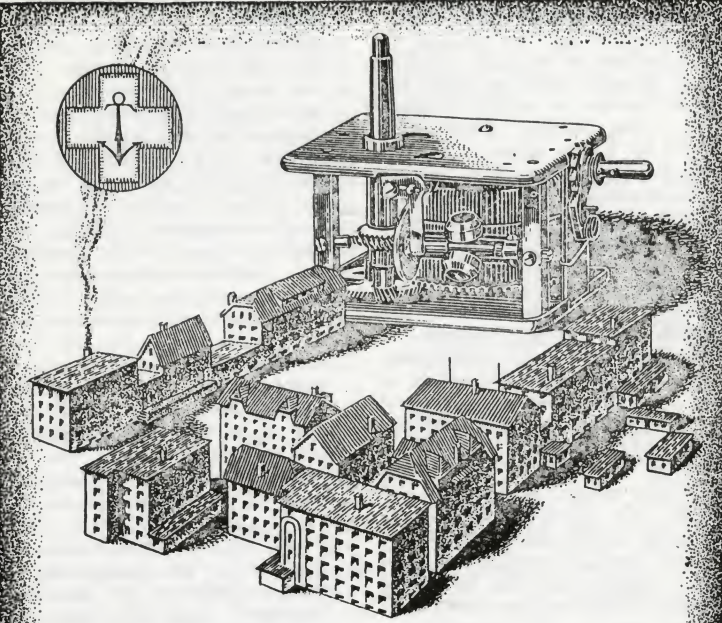
These raw materials were heated up to 110°C until the water had evaporated, then cast into moulds and allowed to cool slowly.

There is, of course, no need to cast or make any kind of standard cylinder, as long as it will fit onto the recording machine. Only the outer diameter and the length need to conform with the standard one, and then a fair amount of tolerance is permissible. Another formula is given later in the book: this is a softer wax normally used for discs.

Lead oxide (PbO)	16%
Olive Oil	32%
Water	20%
Colophony	25%
Hard soap	7%

The first three substances were heated together until all the water had distilled off and the other materials were added slowly, the whole heated until a sample drop cooled on glass gave a mass of the required consistency.

An improved formula given by the author consisted of making lead stearate by adding two parts of litharge to five parts of molten stearic acid, and adding this to equal parts of colophony and paraffin wax until the desired hardness



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was obtained. It should be soft enough to cut with a knife. I will mention here that certainly in the early disc industry, perhaps because of their great mass, blanks were always heated in a special thermostatically-controlled oven before use. They were also aged before using.

Wax is a subject in itself. It can take a great deal of time both in study and experimentation before a decent "master" is obtained. The surface finish after shaving should be like a mirror. The wax should be homogenous throughout, as any changes in density will affect the recording. If the wax is too soft the swarf removed during recording will cling to the surface of the cylinder. It should be removed during recording by a vacuum tube just behind the cutting stylus. This is, of course, undesirable, because of noise during an "acoustic" recording. Sometimes electrical charges are set up on the surface, causing dust particles to stick. This can be discouraged by the use of anti-static solution.

There were a number of methods used in the past to render the master conductive so as to be able to "grow" a mother, or an actual stamper, in the plating bath. Edison used what he called "Gold Moulding", later known as cathode sputtering. He used an alternating source for his high voltage. Briefly the master cylinder was placed on a spindle arranged vertically and quite free to rotate. Carried above the master was a mild steel or iron disc, arranged to rotate with the master. Suspended from a pair of glass rods at each "side" of the master was a strip of pure gold foil, placed near to the surface of the wax, so that the latter was free to rotate past the rods as a merry-go-round passes a spectator. The whole was covered by a bell jar, having a ground base so as to be air-tight when standing on a flat surface. A vacuum pump exhausted the air from the jar, and a motor driving a magnet was arranged to drag the iron disc around from outside the jar, so that the whole rotated slowly past the sheets of foil. Each strip of foil was connected to the ends of the secondary winding of a large induction coil, thus being charged to a very high voltage, the master remaining neutral. Gold is

deposited as an extremely thin coating (on just about everything inside the jar!) rendering the wax conductive and ready for plating.

A later process used by Philips for gramophone records used pure aluminium foil instead of gold. An electrode, or wire, fitted to the master in contact with the deposit (perhaps placed there before sputtering) and away from the recorded surface, is used for the connection whilst plating. A voltage of the order of 10,000-20,000 volts can be obtained using an ordinary motor car ignition coil. A simple transistor circuit, or a trembler from a buzzer can be used to "interrupt" the current in the primary coil. If this is done at some medium frequency there will be no danger from shocks received.

Early gramophone records received a coating of finely powdered graphite applied dry with a brush or pad. This was a rather objectionable (and dirty) process, and because the particles of graphite were of a finite size, caused noise in the finished product.

By far the most popular method long practised by the gramophone companies, is the one similar to the silvering of mirrors (Brashear's process). The work is placed in a solution of silver nitrate containing catalysts, where the metallic silver is precipitated as a thin layer on the surface. This process requires much less equipment, and although theoretically not so good as sputtering, there is no risk of bubbles on the surface of the master caused by the heat and gases produced during the glow-discharge of the sputtering. A wetting agent may have to be used to assist with the silvering. The master is now ready for the electroplating process. As the coating in either case is about 1 millionth of an inch in thickness, the work should be handled with extreme care.

PLATING

The solution is usually a copper sulphate (CuSO_4) in dilute sulphuric acid ($\text{H}_2\text{SO}_4 + \text{H}_2\text{O}$). About 32oz of the sulphate along with 7oz of acid per gallon is used. There is a book published by Argus Books Ltd. describing all kinds

of electro-plating. The equipment uses a large enamelled breadbin (I experimented in a fish-tank) fitted on the underside with a steel plate sandwiching an electric iron element. One could use an immersion heater. It could be fitted with a thermostat, but this would be decided by heat radiated from the tank, i.e., heat losses. Water and mains voltages are not well suited to one another when considering safety, therefore low voltage control should be used (6-24 volts) the contacts rated for at least six amps. The current to the work connected to the positive wire should be rotating or reciprocating. It is supplied from a low voltage, high current transformer and silicon rectifier. It will cost only a few pounds to build if components are purchased from a surplus store, such as Samsons in Chapel Street (address given at the end). The current passing through the work will cause a temperature rise and should be low at first, and increased as the copper forms.

The current is measured in amps per square inch, or centimetre, and can be quite high, although the voltage is low. As current is measured in amps, and amps x volts give watts, one can understand that the wattage is low enough to run a plant at reasonable cost. (Allow for some losses, say 20% in the transformer rectifier).

The area of a cylinder is measured by diameter x pi x length. So 2.1875

$(2-3/16'') \times 3.1415927 \times 4.5 = 30.925053$, or just over 30 square inches. The deposit is around .003" (three thou) per hour, so it would take 333.333 hours to form one inch - around 14 days. A reasonable thickness of 1/8" would take 50 hours or so. The solution can be agitated by pump or paddle, but this is not necessary if the work is caused to move, either by rotating or reciprocating.

NOTE The synchronous speed of an electric (induction) motor is given by the formula $\text{FREQ} \times 60 \div \text{number of pole pairs or } \frac{1}{2} \text{ the number of poles}$. So a 4-pole motor running at 50Hz (cycles) per second is $50 \times 60 (3,000) \div 2 = 1,500$ 1,500 rpm is only attained without load. In practice a speed of 1,440 would be common. On 60 cycles (Hz) the synchronous speed would be 1,800 rpm ($60 \times 80 \div 2$) There are some special motors designed to run, with a load, at synchronous speed. If the stated load is exceeded the speed will slip back and the motor will develop very little power.

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SUPPLIES

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[redacted] (Tel: [redacted])
[redacted] Samsons (Electronics) Ltd., [redacted]

Obituary

Dear Sir,

It is with regret that I have to advise you of the death, after a comparatively short illness, of Society member Peter White, of Litton Cheney, Dorset. He was a solicitor practising in Dorchester. Music was his hobby; he had a love of classical instrumental music, and liked to listen to chamber music on 78s via his large E.M.G. gramophone. It was his ambition to design and make an acoustic machine, and this was a subject often discussed on his visits to us in Puriton. Sadly this ambition was not to be realised. He was a kindly man, always willing to help with projects and ideas. Some members may recall that for a time he edited the Regional Reports.

Sincerely, George Overstall

Record Reviews

MOVIE MUSICALS 1927 to 1936

by George Taylor

THIS ALBUM contains sixteen songs from Hollywood musical films made between 1927 and 1936. However, only three are taken from the film soundtracks themselves; the remainder are taken from 78s released more or less concurrently with the films. Film buffs may be a little disappointed with this situation, and you have to read the small print to understand what you are actually about to hear. By the way, for this record, if a film had a song, it seems to be counted as a musical.

Sound engineers can now do wonders with getting the most out of old recordings, and Robert Parker, who produced the transcriptions on this album, has certainly transformed the sound of his raw material. Parker expounded his philosophy to CLPGS members at Hatfield '87, and a summary of his presentation appeared in "Hillandale" 156. He aims to transform the sound of old recordings into something acceptable to modern ears for which the original sound is not even a memory. Though his efforts have been acclaimed in some quarters and condemned in others, I am convinced that these 20s and 30s records sound as good on this album as you will probably ever hear them.

In spite of Parker's wizardry, the sound from the three optical soundtrack items is noticeably inferior to that from the 78s. This is not surprising, perhaps; after all, Vitaphone adopted the cumbersome sound-on-disc system in 1926 simply because the disc sounded so much better; and although optical sound had improved sufficiently by 1930 for even Warners to abandon discs, disc recording itself had also attained higher fidelity. It is a pity that the two Vitaphone disc film items (Jolson in "The Jazz Singer" and Fanny Brice in "My Man") were not transcribed from the original soundtrack discs, as it would have been interesting to see what Parker could have made from that sound: but then that was not part of the thinking behind this album.

Let me stress that this is a very enjoyable album. The sound is excellent, with virtually no trace of surface noise from the old 78s or hiss from the optical tracks. The bass is prominent (as was deliberately the case on early electrics) but you can adjust your controls if you want a bit less. Before you do, listen to the superb double-bass line in "Three Little Words", a Duke Ellington release of 1930 (HMV B5945?).

The three optical track excerpts are Ginger Rogers and Fred Astaire singing in "Swing Time" (1936), Ruby Keeler with a bit of Dick Powell in "42nd Street" (1933), and Shirley Temple in

"Bright Eyes" (1934). Does the fact that Parker used the film soundtracks mean that there were no concurrent 78s of these numbers? They certainly confirm my opinion that, sparkling showgirls though they were, Rogers and Keeler could not sing; and the less said about "The Good Ship Lollipop" the better, perhaps, leaving out the question as to whether "Bright Eyes", the six-year-old Temple's twelfth film, was a musical.

The record is accompanied by two pages of notes, which are good and bad. First the good. Each track is admirably summarised with background material on both music and artists. Next the bad. My main complaint is that the original 78s are inadequately described. (I hesitate to suggest that this is further to disguise the fact that we are not, on the whole, dealing with the original film sound!). Recording date, place, and matrix number(?) are given, but not the issuing company or catalogue number, so it is difficult for a record collector to identify the particular disc easily. (I think I succeeded on four HMV releases). There are the inevitable errors of detail. "The Jazz Singer" was not "the world's first sound movie", it was the first feature film with synchronised dialogue (all three minutes of it, or was it twenty words or so?). Fanny Brice's "My Man" was released in 1928, not 1929, and Take a Chance in 1933, not 1932. Then Eddie Cantor's "Kid Millions" (1934), a black and white film, is described as having "a spectacular hand-tinted colour sequence near the end". Hand tinting in 1934! The sequence was, of course, shot in full Technicolour. But record identification apart, these are minor deficiencies.

Among the treats on this album for me is the track of Gloria Swanson in a song from "Perfect Understanding" (1933) (HMV B4357?). She had a good singing voice and her flagging silent film career took on a new lease of life with the coming of sound.

Oh yes; and what about the digital stereo from these old mono recordings? To my ears, channel separation was minimal, even when headphones were used. Don't worry - play the record mono: you'll still enjoy it.

BBC ENTERPRISES: L.P. REB654; Cassette ZCF654; Compact Disc BBC-CD654

Side 1: Fred Astaire, A Fine Romance; Al Jolson, My Mammy; Fanny Brice, My Man; Duke Ellington & his Orchestra, Three Little Words; Jeannette MacDonald, Beyond the Blue Horizon; Maurice Chevalier, What would you do?; Gloria Swanson, I love you so much that I hate you; Cliff 'Ukulele Ike' Edwards, It's only a paper moon. Side 2: Mae West, I'm no angel; Ruby Keeler & Dick Powell, 42nd Street; Bing Crosby, Learn to croon; Shirley Temple, On the Good Ship Lollipop; Eddie Cantor, Okay Toots; Dick Powell, Lulu's back in town; Paul Robeson, Ol' Man River; Fred Astaire, Bojangles of Harlem.

TALKIE FILM THEMES

by George Frow

Recordings by The Regal Cinema, Marble Arch, Orchestra (RCO) conducted by Emmanuel Starkey, with Quentin MacLean (QM) at the Christie Unit Organ.

IT IS A FORTUNATE COMPILER who has laminated Columbia records to transfer to tape, as these are often found to stand up to the ravages of years and heavy soundboxes better than most, and to retain a quality of sound second to none.

Here we have 16 such sides in a first-class transfer of orchestra and organ pieces compiled for The Northern Theatre Organ Trust. In the silent and early "talkie" days there were orchestras in cinemas of any reasonable size, and just a few of these became famous through broadcasting and records: Frank Westfield's from Lewisham, Joseph Muscant's from the Commodore, Hammersmith, and Emmanuel Starkey's from the Regal, Marble Arch, were probably the best-known. One or two like Muscant's or Anton's lasted up to the 1939 war: the rest existed for just a year or two into the talkies and either faded overnight or withered into something much smaller, as did Starkey's - from 25 strong into the Regal Virtuosi, a salon set-up.

On this cassette the grand orchestra is heard at its best, and with organ accompaniment plays selections from films and shows of the day. Of its type it sounds as good as anything that Paul Whiteman fielded.

The organist was Quentin MacLean, probably the most musically of all the cinema organists, as those who have any of his Regal Cinema and Trocadero records know. Five solo items here embrace both the well-known and less heard. Fortunately the 4-manual Christie organ with its 32 cast bell carillon and tuned bird whistles was put in store in 1964 when the cinema was demolished, and some of these effects may still be heard on this excellent cassette of early talkie music. A well-thought-out presentation of a neglected musical aspect, and one of the most cheering recordings heard for a long time.

Recordings of: Broadway Selection (RCO); My Mother's Eyes (QM); Gold Diggers of Broadway Selection (RCO); There's nothing new in love (QM); Show of Shows Selection (RCO); Dream Lover (QM); Sally Selection (RCO); On the Sunny Side of the Street (QM); King of Jazz Selection (RCO); Song Hits of 1930 (QM).

Cassette published by Northern Theatre Organ Trust, [redacted] price £3.90.

Book Review

THE EDISON PHONOGRAPH MONTHLY
VOLUME IX, 1911

Reprint published by Wendell Moore,
[redacted] SEDONA, Arizona 86336 USA.
Hard binding with gilt blocking, price \$25 post paid

WHEN EDISON PRODUCTS were in full swing the Company made several publications available for dealers and the public, with details of the latest in records and phonographs. One designed for the Trade was The Edison Phonograph Monthly, running from 1903 to 1916, and these issues embraced what to most Edison collectors are the finest years.

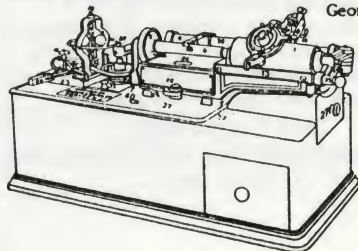
Wendell Moore, the prominent Edison expert, was lucky to obtain a complete run that he was prepared to have reprinted for other collectors, and every year or so since 1976 has produced 12 monthly copies bound together in book form. With the publication of Volume IX the project has got two thirds of the way, and there may be members who do not know about it.

Not only are the phonograph models and accessories listed as they came out of the factory, but there is background material about the music, shows and composers, and short articles about the artists; also British and other foreign numbers are detailed.

This has been quite an undertaking that I know has driven Wendell Moore almost to defeat at times, but the whole series is now assured and I do commend it to all members with Edison preferences who perhaps have always intended to buy this series. I am fairly certain that all back numbers are still obtainable and with the depressed dollar at the time of writing, should not be too expensive.

Volume IX is for 1911, the peak year of the horn phonographs; it is full of information and so difficult to put down. The only possible reservation I can make is that many of the illustrations have reproduced on the dark side; this may be due to too light a paper being used to keep the weight down - it already weighs 1½lb. This is a series that should be gathered while still in print.

George Frow



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LONDON MEETINGS

Held at 7pm in the Bloomsbury Institute, Bloomsbury Central Baptist Church, 235 Shaftesbury Avenue, London. (Enter by the left hand door). Tuesdays:

APRIL 19th Len Watts will give a talk on "Pathé in Britain."

MAY 17th Jeff Edwards "A mixture of light music and humour."

NEWCASTLE-UPON-TYNE (Clockwork Music Group)

All meetings held in the Activities Room of the Science Museum Blandford Street, at 2pm to 4.15pm Saturdays:

MAY 7th Reminiscences of a trouper, by Veronica Twiddle.

JULY 2nd TALKING MACHINE DAY, An audio visual presentation by Fred and Cyril Hay, on the talking machine, together with a special display of EDISON items.

DECEMBER 3rd Traditional MAGIC

LANTERN show presented once again by Derek and Isobella Geenacre.

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BOOKLIST NOTICE: Please note that the following books are NOW OUT OF STOCK and deleted.

B.142 - Compleat Talking Machine **Hard back.** Still available in soft back. B.117 - Van Muziekdoos. B.118 - Phonographs & Gramophones. B.40 - Nicole Frères. There are only a few copies left of 'Tin Foil to Stereo' Each one with a

FREE copy of 'Proceedings of the 1890 Convention'. Price £14. Please note that B.125 'Putting the Record Straight' new price is £10.95

WANTED: BERLINERS, Pre-1901, especially Dwight Moody, Robert Jefferson, 11 Primrose Road, Clacton. Ap88-De89

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Bill Eigenfeld

88

MINIATURE GRAMOPHONE. Mikkyphone (Japanese circa 1948). With exception of turntable, complete but needs total rebuild (no rust). £55 includes surface mail postage.

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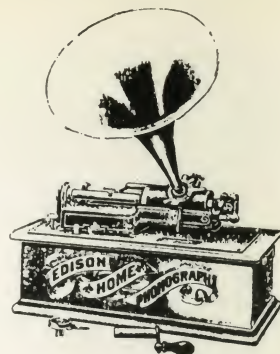
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